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09/517,434	03/02/2000	JAHANGIR S. RASTEGAR	13285	4946

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EXAMINER

BURCH, MELODY M

ART UNIT

PAPER NUMBER

3683

DATE MAILED: 02/28/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/517,434

Applicant(s)

RASTEGAR ET AL.

Examiner

Melody M. Burch

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-- The MAILING DATE of this c mmunication appears on th cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-27,29-39,41,46,47 and 49 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-8,12-27,29-32,35-39 and 41 is/are rejected.
- 7) ☒ Claim(s) 9-11,33,34,46,47 and 49 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of the first and second scissor sub-linkages in combination with first and second parallelogram sub-linkages of at least two parallelogram linkages as claimed in claims 1 and 8 and 27 and 31 and the limitation of the tubular cavity of the tubular element being coiled within the space in a helical manner being helical as claimed in claim 39 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The disclosure is objected to because of the following informalities:
- In line 10 of pg. 48 element number 152 is used to represent "deadband" and is also used to represent "gain" in line 22;
 - In lines 9-10 from the bottom of pg. 8 the "support means" is described as an array of elastomeric structures that buckle, then in lines 4-6 support means 30 is described as an array of "tubular... elements 33".
- The specification is objected to for representing both the deformable member or elastomeric structure and the tubular elements as support means. Such a description leads to confusion in claim 39, for example,

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which claims a support means and a deformable member comprising compressible material in the form of a tubular element as two distinct elements. Clarification is required.

Appropriate correction is required.

Claim Objections

3. Claims 1, 4-26, 39, 41, 46, 47, and 49 are objected to because of the following informalities:

- In the last three lines of claim 1 the phrase "support means...for providing transmission of...vibration...are suppressed" should be reworded for grammatical purposes.

Appropriate correction is required. Claims 4-26 are objected to due to their dependency from claim 1.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 4, 5, and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Re: claims 4 and 30. The phrase "the first and second parallelogram sub-linkages" in lines 1-2 of claims 4 and 30 are indefinite. It is unclear whether Applicant is referring to the first and second sub-linkages of one or each of the at least two

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parallelogram linkages. If Applicant intends to claim the first and second parallelogram sub-linkages of each of the at least two parallelogram linkages, it is noted that the figures do not show multiple sets of first and second parallelogram sublinkages sharing a common member among the sets.

Claim 5 is indefinite due to its dependency from claim 4.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1, 4, 7, 12, 13, 17, 19, 27, 29, 35, 36, and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 5732802 to Tsukagoshi.

Re: claims 1, 12, 13, 35 and 38. Tsukagoshi shows in figures 10 and 12 a payload isolation system for isolating a payload 2a from a base structure 2b upon which the payload is supported, the payload isolation system comprising: motion constraint means comprising mechanical linkages 22,25 for maintaining a parallel relationship between the payload and the base structure; and support means 23,26 for providing vertical and/or lateral support of the payload relative to the base structure such that the transmission of vertical and/or lateral vibration between the payload and the base structure are suppressed.

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Re: claim 17. Tsukagoshi shows in figure 12 the limitation wherein the support means comprises a bottom plate 23 fixed to one of the payload or base structure or portions thereof via element 22, a top plate 26 movable relative to the bottom plate and fixed to the other of the payload or base structure or portions thereof via element 22, the support means further comprising a compressible material or the oil in element D disposed in a space between the top and bottom plates.

Re: claims 27 and 36. Tsukagoshi shows in figure 12 the limitation wherein the mechanical linkage comprises at least one parallelogram linkage (22, 25, portions of 2a and 2b, and unnumbered linkage to the left of element 22 to the same extent that parts of the parallelogram linkage of the instant invention include portions of the payload and base structures) disposed between the payload and base structure.

Re: claims 4 and 29. Tsukagoshi shows in figure 12 the limitation wherein each of the at least one parallelogram linkage comprises first and second parallelogram sublinkages the first sublinkage comprising elements 22,25,2a,2b and the second sublinkage comprising elements 22,2a,2b,and unnumbered linkage to the left of element 22 the first and second parallelogram sublinkages sharing a common member 22, one of the first or second parallelogram sublinkages being fixed to the payload or a portion thereof, the other of the first or second parallelogram sublinkages being fixed to the base structure or a portion thereof as shown.

Re: claim 7. Tsukagoshi shows in figure 12 the limitation of the system further comprising damping means D for resisting relative displacement and/or velocity between the payload and base structure.

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Re: claim 19. Tsukagoshi shows in figure 12 the limitation of a payload adjustment means 1 for adjusting the level of support of the support means in response to a variation in an effective payload weight and/or a variation in a relative distance between the payload and the base structure.

8. Claims 1, 4, 5, 8, 12, 13, 27, 29-32, 35-38 rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 4068825 to Macpherson.

Re: claims 1, 4, 12, 13, 27, 29, 35, 36, 38. Macpherson shows in figure 2 a payload isolation system for isolating a payload such as a vehicle not shown from a base structure such as the ground upon which the payload is supported, the payload isolation system comprising: motion constraint means including links 38,36,26,16,42 for maintaining a parallel relationship between the payload and the base structure throughout a range of motion see col. 5 lines 60-62 in combination with figures 1 and 2 and support means 11 for providing vertical and/or lateral support of the payload relative to the base structure such that the transmission of vertical and/or lateral vibration between the payload and the base structure are suppressed.

Re: claims 5, 30, and 37. At least one of the parallelograms includes the linkages 68,65 and a portion of links 26,38 which is non-parallel to the linkage including links 30,38,42,36.

Re: claims 8, 31, and 32. The use of scissor construction is disclosed in col. 6 lines 15-23.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of US Patent 5052529 to Sutcliffe et al. Sutcliffe et al. teach in figure 1 the use of a payload isolation system for isolating a payload 10 from a base structure 12, the system comprising motion constraint means 18 and support means 20,22,24 including actuators 22,24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the support means of Tsukagoshi to have included actuators, as taught by Sutcliffe et al., in order to provide a means of actively controlling the vibration damping in the payload isolation system.

11. Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of US Patent 3191896 to Nathan. Nathan teaches in figures 1-3 the use of a resilient support means comprising a deformable mat having at least one internal tubular cavity 5 such that the deformable mat exhibits nonlinear elastic characteristics as shown in figure 5. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the support means of Tsukagoshi with a support means, as taught by Nathan, in order to provide a greater range of deformation under certain loads.

12. Claims 20, 21, 22, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of US Patent 5127622 to Whelpley et al. Whelpley et al. teach in figure 1 a payload isolation system including a payload adjustment means 20,16,30 comprising a support adjustment means 16, a feedback means 20,30 capable of sensing a change in relative distance between the payload and the base structure and controlling the support adjustment means in response thereto, a deformable mat 86 having at least one internal tubular cavity 88 and wherein the support adjustment means comprises: a gas source 18 in communication with the at least one internal cavity, a ramp means or periphery of element 44 for engaging the deformable mat, and a drive means or load on element 14 for driving the ramp means wherein the feedback means controls the gas pressure level in the internal tubular cavity in response to the change in relative distance between the payload and the base structure. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the payload adjustment means of Tsukagoshi to have included a support adjustment means and a feedback means etc., as taught by Whelpley et al., in order to provide a means of using active control to enhance the vibration damping capabilities of the payload isolation system.

13. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of US Patent 5127622 to Whelpley et al. as applied to claim 20 above, and further in view of Ivers et al. Ivers et al. teaches in figure 6 the use of a first low pass filter 94, a summer 92, a gain means 98, and a second low pass filter 96. It

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would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the feedback means of Tsukagoshi, as modified, with the remaining components of the feedback means, as taught by Ivers et al., in order to provide an adjustably variable isolation system.

14. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tsukagoshi in view of Prior Art figure 19. Tsukagoshi describes the invention substantially as set forth above, but does not include the limitation of the payload and base structure being components of a rocket. Prior Art figure 19 teaches the use of a payload and base structure 101, 102 as components in a rocket. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have utilized the payload isolation system of Tsukagoshi in the rocket environment, as taught by Prior Art figure 19, in order to isolate vibrating rocket components. It is inherent that the effective weight (mg) of the payload will vary with time since the value of g will change during the rocket course.

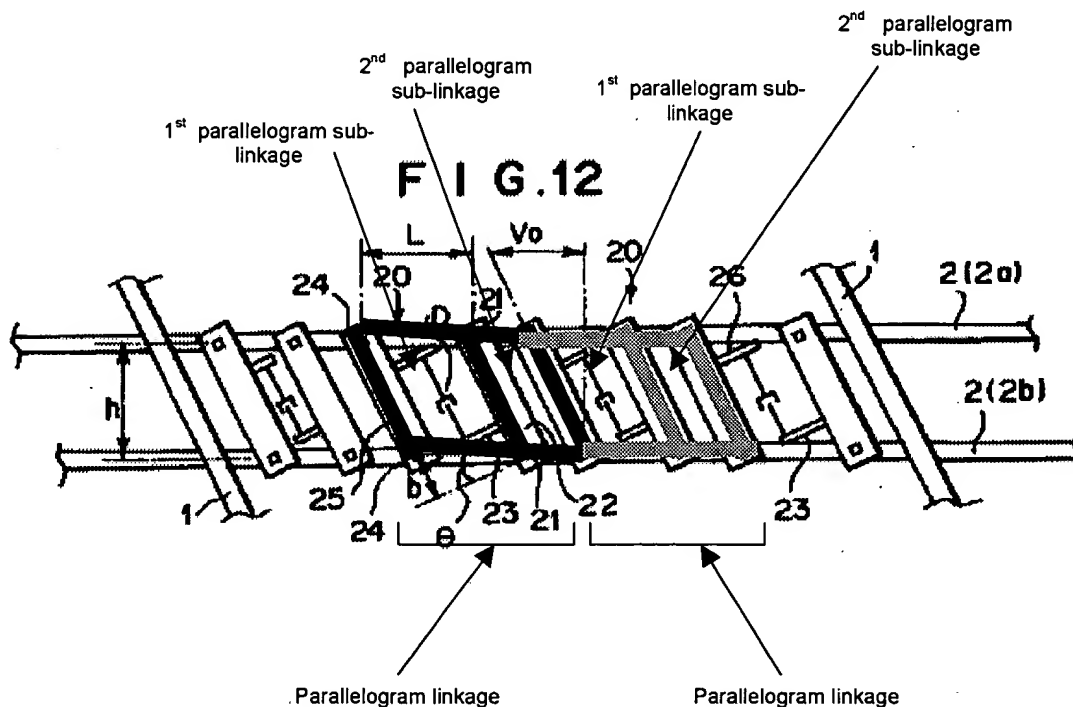
15. Claims 39 and 41 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6389900 to Leist et al. in view of US Patent 3834257 to Ganser. Leist et al. show in figures 4A and 4B a support apparatus for providing vertical and/or lateral support of a payload 24 relative to the base structure 48 such that the transmission of vertical and/or lateral vibration between the payload and the base structure are suppressed, the support apparatus comprising: a deformable member exhibiting nonlinear elastic characteristics in response to an effective payload weight, support means for supporting the effective payload weight, and effective payload adjustment

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means for adjusting the level of support of the support means in response to a varying effective payload weight, wherein the deformable member comprises a bottom plate 50 fixed to one of the payload or base structure or portions thereof, a top plate 56 movable relative to the bottom plate and fixed to the other of the payload or base structure or portions thereof, the deformable member further comprising a compressible material 46 disposed in a space between the top and bottom plates. Ganser teaches in the figure the use of a compressible material being an elastomeric extruded tubular element 6 of having a tubular cavity running therein and being coiled within a space in a helical manner to thereby fill the space. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the compressible material 46 of Leist et al. to have included an extruded tubular element being coiled within a space in a helical manner, as taught by Ganser, in order to provide a means of having a large amount of compressible material within a given space. In *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) the court held that the configuration of a claimed object was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration is significant.

Allowable Subject Matter

16. Claims 9-11, 18, 26, 33, 34, 46, 47, and 49 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.



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18. In response to the argument that the mechanism of the Tsukagoshi reference does not allow independent vertical and lateral motions of the payload relative to the base and thus results in the mechanism not being capable of being used to isolate the payload from vibration, it is noted that the allowance of independent vertical and lateral motions is a recitation that is more specific than the claim language. The claim calls for vertical and/or lateral vibrations between the payload and the base structure. Examiner notes that in col. 10 lines 2-4 and lines 12-15 the mechanism is disclosed as damping or suppressing horizontal or lateral vibrations. In response to the argument that the Tsukagoshi reference fails to show two or more parallelograms each having first and second parallelogram sub-linkage, Examiner directs Applicant's attention to labeled figure 12 shown on pg. 11 of this Office Action which clearly illustrates the parallelograms and their respective parallelogram sublinkages. The arguments with respect to Rusen are unclear as no such reference was used in the rejection of claims 1, 27, and 36. Similarly, in response to the argument that Macpherson also does not teach the use of two or more parallelograms between a base and payload, the parallelograms each comprising two sub-parallelograms, Examiner notes that the claim language calls for two or more parallelogram *linkages* each comprising parallelogram *sub-linkages* and maintains that Macpherson shows in the figure on the front of the patent the limitation of two or more parallelogram linkages and sub-parallelogram linkages to the same extent as Applicant's figure 1. It is also maintained that the structure of Macpherson provides the vertical and/or lateral support as claimed as it was discussed in the advisory action of paper no. 10. Finally, in response to applicant's

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arguments against the references individually with respect to claim 39, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Examiner notes that Leist et al. included the limitation of a deformable member comprising a compressible material 46 located in the space between the top and bottom plates and reiterates that Ganser was used solely for the teaching of a deformable member being in the form of a tubular member having a tubular cavity being coiled within a space in a helical manner. Examiner also notes that in *In re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) the court held that the configuration of a claimed object was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular configuration is significant. Since no statement of criticality for the helical shape of the deformable member has been provided by Applicant, Examiner holds that the deformable member would function equally as well having a helical configuration, as taught by Ganser, or any appropriate shape as determined by routine experimentation and manufacturing constraints. Therefore, the rejection has been maintained.

Conclusion

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

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§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melody M. Burch whose telephone number is 703-306-4618. The examiner can normally be reached on Monday-Friday (7:30 AM-4:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Lavinder can be reached on 703-308-3421. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-7687 for regular communications and 703-305-7687 for After Final communications.

21. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

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mmb

February 25, 2003

M.C. Graham
2/27/2003
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